



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/583,629

05/31/2000

Samuel A. Cooper

15676-223495

4026

33072

7590

11/15/2007

KAGAN BINDER, PLLC  
SUITE 200, MAPLE ISLAND BUILDING  
221 MAIN STREET NORTH  
STILLWATER, MN 55082

EXAMINER

RUTLEDGE, DELLA J

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

09/583,629

Applicant(s)

COOPER ET AL.

Examiner

D. Rutledge

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-29, 31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 21, 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-20, 22-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Proposal*

1. The arguments by the applicant have been considered, but are not fully persuasive. The examiner see possible allowable subject matter in independent Claims 9, 31 and 32. The applicant is invited to contact the examiner to discuss this proposal.

### *Claim Rejections - 35 USC § 103*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 10 - 20, 22, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US Pat. No. 168,665) in view of Sugawara et al. (US Pat. No. 5,499,193) and Nguyen (US Pat. 6,168,672).

The rejection of record is continued. Sakai, as discussed in the previous action, has the basic method and apparatus for spin coating or spin developing a solution onto a substrate. The method includes a serial process controlled by executing a series of subroutines.

Although Sakai et al. do not give details of the process, one of ordinary skill in the art would know that critical features of the process must be controlled by monitoring those features. For developing, thickness is one of the critical features that must be

controlled. This feature is commonly controlled by monitoring the thickness, and correcting or preventing problems by modifying the amount of solution, the speed or rotation of the chuck / stage, etc..

Sugawara et al., as discussed previously, broadly discusses controlling critical features by monitoring them and performing interrupt actions to correct problems. The applicant has argued that the reference uses software interrupts, rather, hardware interrupts, as is now being claimed. Sugawara et al. is used as a broad teaching that one of ordinary skill in the art would have used interrupt signals / routines to control critical features. Those skilled in the art would know that hardware interrupts, software interrupts or a combination of the two may be used to carry out the method.

Nguyen is cited because the reference broadly teaches the use interrupt signals and timers to control various features in the process method.

One of ordinary skill in the art would be motivated to use the teaching of these secondary references with the Sakai et al. reference to control critical features of the process and would have arrived at all features of the applicants' claims 1 – 4, 22, 29. Claims 10 – 20, 27, 28 - The process is a serial process, but different features of the process are carried out in parallel, therefore the dispensing of the solution, control of the speed or rotation of the spin chuck, etc. would be performed in parallel and would use appropriate timers.

4. Claims 6 – 8, 22 – 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US Pat. No. 6,168,665) in view of Sugawara et al. (US Pat. No.

5,499,193) and Nguyen (US Pat. No. 6,168,672) as applied to claims 1 – 4, 9, 22, 29, 31 and 32 above, and further in view of Fujimoto et al. (US Pat. No. 6,391,111).

Sakai et al. , Sugawara et al. and Nguyen were discussed in paragraph 2. Fujimoto et al. is cited because the reference has a spin coating process and uses monitoring means such as sensors to control the process.

One of ordinary skill in the art would know the most appropriate time to send the interrupt signal that would best control the critical features of the process.

#### ***Response Data***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
09/583,629  
Art Unit: 2851

Page 5

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



D. Rutledge  
Primary Examiner  
Art Unit 2851

dr  
11/13/2007